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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,129

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Hans Desilvestro

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EXAMINER

KALAFUT, STEPHEN J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

03/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,129	Applicant(s) DESILVESTRO ET AL.	
	Examiner Stephen J. Kalafut	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>14 Feb 2006</u> . | 6) <input type="checkbox"/> Other: ____. |

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fauteux *et al.* (US 2003/0194605), in view of either Ubukawa *et al.* (JP 5-62,712, cited by applicants) or Tsushima *et al.* (US 6,294,292) and in view of Itoh *et al.* (US 2002/0051904, cited by applicants).

Fauteux *et al.* disclose a multilayered battery substantially as presently claimed, including repeating units of flat cells (figure 4) within mechanical compression means (figure 5) including ends plates (60) and conductive sheets (82). The cells include bipolar plates (paragraph 0041), the present lithium-insertion electrode materials including those with a spinel structure or with dopants (paragraph 0042), electrolyte salts and solvents (paragraphs 0024 and 0060), sealing frames (paragraph 0054) that can be made hermetic (paragraph 0059), and adhesives (paragraph 0056), which may form a barrier layer. The present claims differ from Fauteux *et al.* by reciting that the number of cells in a group ranges from 2 to 10, means for monitoring the voltage of a subgroup of cells, which is less than the number in the group, and a ratio of anode to cathode capacity of 0.6 to 1.3. Tsushima *et al.* disclose a lithium ion cell in which the ratio of cathode to anode capacity ranges from 0.1 to 1.2, which would correspond to an anode to cathode capacity ratio of 0.83 to 10, and teach the ratio of anode to cathode capacity as affecting the chargeability of the electrodes and the undesirable possibility of depositing lithium as metal (column 2, lines

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25-31). Because this would show this ratio to be a result-effective variable, determining an optimal ratio of anode to cathode capacity would be obvious to the ordinary artisan. Because the cells of both Tsushima *et al.* and Fauteux *et al.* are of the lithium ion variety, it would be obvious to optimize the ratio of anode to cathode capacity of Fauteux *et al.* as taught by Tsushima *et al.* Ubukawa *et al.* disclose a lithium cell, in which the ratio of cathode to anode capacity is between 1:1 and 1:1.3 (abstract, lines 3-6). This would correspond to an anode to cathode capacity ratio of 0.77 to 1. This serves to minimize the problems of decomposition of electrolyte and reaction between an active material and a conductive agent. Because of these beneficial results, it would be obvious to set the anode to cathode capacity ratio of the cells of Fauteux within the range disclosed by Ubukawa *et al.* Itoh *et al.* discloses modules of lithium ion battery cells stacked in series, with the stacks connected in parallel (figure 1). The number of cells in the parallel stacks may be equal (paragraph 0045), and vary from 4 (paragraph 0047) to 14 (paragraph 0050), but may also be 9 (paragraph 0055) or less. Means for monitoring voltage may be present for every cell, but alternatively around a subgroup of cells within a stack (paragraph 0042), which would correspond to the present “m” being less than “n”. Because this arrangement produces a large amount of power at a large capacity, which not being adversely affected by short circuit within a single cell (paragraph 0007), it would further be obvious to connect the cells of Fauteux *et al.* serially in stacks that are connected in parallel with each other, as shown by Itoh *et al.*

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fauteux *et al.* in view of Tsushima *et al.* and Itoh *et al.* as applied to claim 19 above, and further in view of Martinet *et al.* (US 2005/00697968).

This claim differs from the above combination by reciting a sealing arrangement that includes a heat sealable layer, a barrier layer, and an additional insulating layer. Fauteux *et al.* disclose frames (46) that would be heat sealable and an adhesive or hot melt that would form a barrier between them (paragraph 0056). Martinet *et al.* disclose a stack of battery cells that includes repeating layers of material, with an outer seal material (12 or 22) that surrounds the stack. To obtain the additional safety from the outer seal material of Martinet *et al.*, it would be obvious to add the material to the sealing arrangement of Fauteaux *et al.*

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fauteux *et al.* in view of Tsushima *et al.* and Itoh *et al.* as applied to claim 1 above, and further in view of Von Alpen *et al.* (US 4,448,860), cited by applicants.

This claim differs from the above combination by reciting a gas-absorbing getter as part of the seal structure for each cell. Von Alpen *et al.* disclose a cell with a gas-absorbing getter that may be used in the housing seal (abstract, lines 9-13). To obtain the additional safety from the absorption of any gas, as provided by the getters of Von Alpen *et al.*, it would be obvious to use these getters in the sealing structure of Fauteaux *et al.* as taught by Von Alpen *et al.*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fauteaux *et al.* is the equivalent of WO 03/85751. Tsushima *et al.* is the equivalent of EP 973,180. Martinet *et al.* is the equivalent of WO 47021. These are all cited under category "Y" on the International Search Report. Chiang *et al.* (US 2003/0099884) is the equivalent of WO 03/12908, cited by applicants. This document, although also indicated as "Y",

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is not used in the rejection because the two electrodes form an interpenetrating network, and thus form a cell structure different from that presently claimed.

The disclosure is objected to because of the following informalities: Numeral 32, without prime (') or double prime ("), in figure 2, is not found in the specification. The numeral 81, found in the specification on page 8, lines 37, is not found in the drawings. Appropriate correction is required.

The use of the trademarks "SURLYN" and "ACLAR", on page 7, has been noted in this application. They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

These trademarks are properly capitalized, but are not accompanied by any generic terminology.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 571-272-1286. The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen J. Kalafut/
Primary Examiner, Art Unit 1795